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ABSTRACT

This paper investigates the potential relationship of Vygotsky's Zone of Proximal Development (ZPD) to gesture and second language learning. It is asserted that the ZPD is both a tool and a result, not a tool for result; it is both product and process at the same time. The process of learning a new language/culture in the case of a person who is living in a country where the second language is dominant is at least in part a transformational process. In this process, there is an unavoidable element of play and drama, where the individual struggles to "play" him or herself in the new language and culture. Gestures are an integral part of this inevitable drama and play acting. Gesture is in general highly linguistic in nature, a finding that needs to be considered in conjunction with verbal accounts of language learning. This study documents many cases in which gestures become lexical items repeated by both interactants as the interlocutors scaffold each other in their efforts to co-construct meaning. Clearly gestures are an important means of enhancing communication and facilitating comprehension, and are therefore a necessary part of sound pedagogical practice. (Contains 15 references.) (KFT)

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GESTURE AND THE ZONE OF PROXIMAL DEVELOPMENT IN SECOND LANGUAGE LEARNING: A CASE STUDY

INTRODUCTION

Within education, the Zone of Proximal Development is the most well known of the components of Vygotsky's theoretical framework. However, there has been a tendency to treat this concept as a mechanism that can be enlisted by teachers to measure an individual's deficits in relation to the subject matter at hand. This ignores the central idea that who the individual is in relation to the person he or she is working with makes a critical difference: that the ZPD is a function of co-construction. Also, as suggested by Newman and Holtzman (1993), there has been an undue emphasis on the spacial metaphor, that is, speaking of what is "in" or not "in" the zone. Newman and Holtzman argue that the ZPD is not so much a "place" as an "activity", and moreover a revolutionary activity that can lead to both learning and transformation and for all involved. Thus, Newman and Holtzman characterize the ZPD as a "tool and result" as opposed to a "tool for result". It is then both process and product at the same time. It is this perspective of the ZPD that I wish to pursue.

As I will focus on gesture in relation to learning a second language, there are other aspects of Sociocultural Theory that I would like to bring in in relation to the ZPD. First, I suggest that the process of learning a new language/culture in the case of a person who is living in a country where the L2 is dominant, i.e. in naturalistic

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contexts, is at least in part a transformational process that, as described by Vygotsky in relation to children, moves from an interpersonal to an intrapersonal plane of development. This entails recognition by the individual that he or she is under apprenticeship to a new form of being, which I concede is a matter of degree (see Lantolf's 1999 review on second culture acquisition), but it is difficult to imagine that L2 learning in naturalistic conditions of exposure would occur without transformational elements. This idea is reinforced if we consider that the perspective of the ZPD I am taking emphasizes its role in creating new meaning, something that is cognitively at the heart of apprenticing to any new and/or different form of understanding/being. Again, this is why the ZPD cannot be viewed as simply a pedagogical technique, a "tool for result". As a "tool and result", Newman and Holtzman argue that the functional structure of consciousness changes through the ZPD, and that how such changes reorganize overall development was one of Vygotsky's principal concerns. Finally, it is important to stress that cognition is not viewed as simply a rational process; instead, thinking and feeling are considered to arise as one, and moreover, that this is an embodied process.

Next, I would like to turn to the role that play and drama have in relation to the ZPD as I believe these features are particularly important in connection to the use of gesture in creating zones of proximal development. First, as noted by Vygotsky, in play a child "always behaves beyond his average age, above his daily behavior." (Vygotsky, 1978). When interacting with native speakers (NS) non-native speakers (NNS) experience this interaction as if "playing themselves in another language". Such a situation is not unlike types of play demonstrated by children who classically take on the role of adults, dressing up and ventriloquating the words of their parents. Also, as Newman and Holtzman point out, we create

new roles for ourselves through performing them. Moreover, and with an eye to the larger view, Habermas, (1984: 90) suggests that participants in interaction are engaged in "dramaturgical action", that is, participants work toward presenting/revealing their subjectivity to one another like actors in the sense of exerting control over their thoughts, opinions, wishes, etc. Of a similar ilk, within the field of Applied Linguistics it has been argued that when faced with living and working in a new country, second language learning necessarily includes establishing selfhood.

Another element that comes from play and drama that is particularly interesting in relation to gesture is the use of indexical space. Indeed Vygotsky (1978) pointed out in reference to how objects used in play come to represent things other than they are that "It is only on the basis of indicatory gestures that playthings themselves gradually acquire their meaning".

Indeed, Artigal (1993) uses indexical space as a primary means to teach second language learning when working with kindergarten children. He does this by marking objects and actions in a narrative through gestures such as pantomiming actions in recognizable spaces, for example, putting cookies in a cookie jar on a kitchen counter top. In doing so, Artigal also recognizes that the way that an object or action is depicted influences how it is understood, i.e., there is a direct connection to sense, not only to meaning though the nonverbal channel.

STUDY

I will now turn to the study. It is important before continuing to establish that the data are derived from a larger study, the focus of which was the appropriation of second language gestures. I will first introduce the participants, situation, and form of data collection. This will be followed by the findings, that is, how gesture was involved in the creation of zones of proximal development. After

most of the findings for a specific use of gesture a brief video clip will be shown.

Participant

The participant in this case study, whom I shall call B, was a male in his early twenties from Taiwan who had left his country for the first time to come to study English in the U.S. At the start of the study he had been living in the U.S. for one month and was attending a large university in the American Southwest, enrolled in two intermediate ESL classes. Over the period of time he was recorded, he was living with his sister with whom he spoke Taiwanese the majority of the time. According to him, the only time he engaged in the production of English was either in class or doing written assignments at home. He tried to improve his listening comprehension through watching television, which he reported doing some 2 to 4 hrs. a day. He also suggested that on occasion he read newspapers and magazines and logged on to the internet to help with his reading in addition to doing homework assignments.

Data collection

Originally, it was hoped that B would be able to participate in the study over a continuous period lasting perhaps a year. However, after arriving in September for the fall semester, 1997, he decided to go back to Taiwan by the middle of November. He expected at that time not to return to the U. S. but in March of the following year, much to my surprise, I discovered him in the student union having a meal and asked him if he'd be willing to continue the study to which he readily agreed. So, B was video taped a total of 15 times, the first 8 of which were done once a week starting the end of September, and the second sequence lasting for 7 weeks, starting at the end of March the following year. Therefore, the duration of the study was

about 8 months, and B was out of the country for 19 weeks in the middle of that period.

The video recordings for the first four secessions included other students as well as B, all of whom dropped out of the study for one reason or another. These recordings were done while B and the others sat on benches in a small park-like area not far from their ESL classroom. The benches formed a "v" shape and the students sat at a 3/4 angle to each other. Each of these secessions lasted between 5 and 10 minutes, and was conducted by John, a research assistant and graduate student interested in second language learning.

In the second set of seven recordings the weather had grown cold, so John and B moved indoors to a room on campus, continuing the same practices as established in the first set of recordings, although this time there were no other interactants. Finally, it is important to point out that although John knew the research had something to do with the appropriation of gesture on the part of L2 learners, this was not a topic he was familiar with nor were any of the specifics ever discussed with him. Also, B was never told anything beyond that the study had to do with second language learning - gesture was never discussed.

FINDINGS

Lexical gestures

In the fourth recording secession, an interesting event took place. The research assistant, John, appeared to guess what the lexical item that B's conversational partner at the time - also a student from Taiwan - was struggling with through the student's use of an iconic gesture for the word "statue". Although this did not appear to have any effect on B's gestures at the time, it did set the stage

for things to come.

The fifth recording was the first time B interacted solely with John. After setting up the camera John took a seat on the bench and began to engage B in various topics for discussion/conversation. Almost immediately, B used a gesture when searching for a vocabulary item as his classmate had done the week before. Also in this recording John took a much more direct teaching role than in the previous secessions when he remained behind the camera. Starting with this recording and continuing to the end of the secessions, John engaged in a number of teaching interventions. He supplied vocabulary items, had B repeat words and phrases, spelled words out, etc.

Gesture had an important role in these efforts as well. For example, in this fifth secession, B gesturally illustrated water being splashed on him while relating his experience of watching a killer whale perform at Sea World in San Diego. John realized that B did not know the word "splash" and asked him, "Did the whale splash you?" And when B gave him a quizzical look, continued, "you got wet" providing a "splash" gesture with the word "wet". A bit later John said, "the verb is splash, you know water ..." leaving the sentence verbally unfinished, supplying a gesture instead: his hand, palm flat, brought down as if slapping the surface of water. The entire teaching intervention hinged upon John's recognition of the meaning of B's "splash" gesture.

The "splash" gesture produced by B is classified both as *iconic* and as an *illustrator*. The use of Illustrators appears to be rather idiosyncratic, that is, some people use them with a great deal of frequency, illustrating much of what they say, while others almost never use them. It has also been found that on the whole some cultures show a higher degree of usage for this type of gesture than others (Argyle 1988). What is interesting in the current context is whether B used illustrators because he is a second language learner or because that is how he normally

converses. The study did not answer this question as there were no data for him conversing in his first language, but it is important to point out that according to Argyle (1988: 195) "Illustrators add considerably to the amount of information conveyed by speech, especially about shapes, physical objects, and spatial relations". B's use of this gesture type before John started sitting down to interact with him was infrequent at best. However at the same time, B did not deploy these gestures in all of the subsequent secessions either.

This leaves open the possibility that B and second language learners in general, utilize this form of gesture to amplify meaning in their efforts to be understood in the L2. This possibility is compelling in B's case as many of his illustrator gestures are accompanied by an understandable verbal element, that is, there is no missing vocabulary as was the case in the example above. I also think the use of these gestures speaks to B's level of engagement - he is clearly trying hard to participate in the conversation when they appear.

The sixth secession involved an interesting addition to the above as John used a metaphoric/emblematic gesture that B had used the week before to refer to children: he held his right hand out in front of him palm down about three feet above the ground. Another metaphoric/emblematic gesture was introduced and repeated in this secession. John held one hand up about chest level with the palm down to signify "down" in the sense of "keeping the price down". This gesture accompanied the word "discount". Later in the secession B repeated this gesture with the same meaning.

The use of gestures that become lexical items repeated by both interactants is, I think, a fine example of working within the ZPD, the interlocutors scaffolding each other in their efforts to co-construct meaning. Clearly this is an important means of enhancing communication and facilitating comprehension. It is also a sound

pedagogical practice. Also in relation to the ZPD, there appears to be a high degree of intersubjectivity between the participants, and it would seem that the use of gesture is a part of this, the shared psychological space being inhabited by shared physical space as well.

Environmental affordances

Perhaps the most involved use of indexical space to create shared meaning and context took place in the sixth recording. B, while talking on the topic of buildings - at the time he was considering being a civil engineer - referenced the buildings in the immediate vicinity to where he and John were sitting at the time by pointing at them one by one (deictic gestures). Other physical features in the immediate environment in this secession were also referred to in a similar manner, B pointing at the ground when referring to "soil", and John patting the wooden bench they were sitting on just before referring to "structure". Also, B used a gesture meant to be inclusive of all of the buildings around them when speaking of "planning". John used this gesture in relation to the buildings as well but later in the secession, the meaning of the gesture was generalized to include elements outside the immediate environment as well.

In the terms of Artigal (1993), the interlocutors established "a semiotic territory that is recognizable, i.e., shared and co-present for all participants" (pp. 15-16). For Artilgal, as described above, the assigning of space is a deliberate practice in his approach to second language pedagogy. In the case of the current data, however, the assigning of space arises spontaneously, B "framing" the local environment as part of the "stage set" for the conversation. As with the findings for the previous section, inclusion of the environment is considered to both insure and elaborate understanding for both participants. John's gestures help to establish meaning for B and B's gestures help to insure that John is not confused by the verbal channel. As

such, this use of gesture adds another dimension to the nonverbal aspect of the ZPD stated above, furthering the involvement of gesture in the creation of intersubjectivity as well. It is also, I think, another fine example of how the ZPD transforms both the activity and the participants (Wells 1999).

Imitation

Vygotsky (1978) suggests that imitation is a key aspect of learning, arguing that "a person can imitate only that which is within her developmental level". Although I do believe this to be the case with regard to the appropriation of second language gesture, it has also been shown in children that nonverbal imitation can be a key to creating a shared sense of context and interpersonal rapport. Within an explicitly tutorial setting, Allen and Feldman (1976) found that young children imitated their tutors' gestures and other nonverbal expressions to a high degree.

Nonverbal imitation in relation to the ZPD seems to operate as a way of setting the stage for the possibility of learning/transformation. As indicated in the findings cited above, this was a prominent aspect of B's nonverbal interaction. It is also of course critical that John both initiated the use of gesture to insure/enhance comprehension and imitated B's gestures. Had he not done so, the interpersonal dynamic may well have been more static, lessening B's sense of involvement in the language learning experience afforded him and decreasing interaction in the ZPD. Indeed with monolingual children, Ward and von Rafler-Engel (1980) found that imitation was not a two-way proposition, that the teacher initiated all of the gestures that were used jointly. This finding is an interesting contrast to what unfolded in the case of the data for the present study, and although it is not known at this time, it may be that for experienced SL/FL teachers imitating the gestures of students becomes a part of their orientation in helping L2 learners. This possibility is

certainly worthy of further research.

Synchrony

In nonverbal interaction synchrony refers to the "mirroring"of "rhythm, movement, and the meshing of interaction" (Argyle, 1988). The psychological focus, as it were, unlike imitation, is centered around creating a sense of unity and/or harmony. For example, Ramsey (1984) argues that synchrony is a highly regarded Japanese value, noting that the wearing of uniforms, for instance, is appreciated by the Japanese as a demonstration of a sense of cohesiveness or "withness". In the case of American culture, McQuire (1980), found that an American child watching a video-taped version of himself on TV would imitate his TV posture and expressions when he agreed with what his screen image was saying but would not do so when he did not agree with the image. In relation to the data under consideration, there are many instances where such a mirroring effect can be found that go beyond what has already been described above, in the sense that the two participants mirror each other's gestures, and not just those that they have jointly lexicalized. They tend to reflect one another in posture as well, and in general, utilize the immediate space around them through gesture in the same manner. This synchrony of movement and rhythm may also be of significance to second language learning, there being evidence from first language acquisition that for infants the body movements that are found to accompany speech are in place before the language is acquired (Waylie 1985).

In relation to the ZPD and intersubjectivity, a tutor's mirroring of a student may well constitute an invitation to literally move into a shared physical mode of being which is representative of the psychological element of the relationship as well. It is a step towards equality that invites a deeper level of interaction than

suggested by the sanctioned roles. It is also noteworthy that research has demonstrated that we tend to coordinate our words and actions with those we like, and that a lack of such coordination can lead to a sense of frustration on the part of an interlocutor (Bernieri and Rosenthal 1991). This is a consideration that speaks directly to the affective nature of the ZPD and nonverbal interaction. In fact, without the presence of synchrony in face-to-face communication, second language learners may simply conclude that an interlocutor is not willing to make the kinds of adjustments necessary to facilitate conversation with a non-native speaker of the language as was found by John-Steiner (1985) in relation to verbal adjustments.

CONCLUSION

Following Wells (1999: 327-328), I believe that the ZPD is linked to transformation, and that transformation is multifaceted. First, there is transformation of the learner's identity in relation to "his or her capacity to participate effectively in future actions of a related kind". Second, there is the "invention of new tools and practices" or the "modification of existing ones" which leads to the transformation of "the culture's tool-kit and its repertoire for problem solving". Third, there is a "transformation of the activity setting brought about by the problem-solving action". Finally, in conjunction with the transformation of the participation of individuals comes "transformation in the social organization of the ground and in the ways in which the members relate to each other". It is my contention that all of these facets of transformation are evident in the role that gesture plays in the interaction recorded for the study. Moreover, along with Wells, I belive that it is diversity rather than improvement per se that receives emphasis in explicating the ZPD as applied to the data I have examined.

Also in relation to transformation, I would like to suggest that the process of learning a language, especially with regard to exposure to naturalistic conditions,

includes the possibility of intrapersonal transformations, that is, the process of reconceptualization through exposure to another language and culture (see McCafferty & Ahmed 2000). The role that nonverbal interaction, and notably gesture, plays in this process is also, I believe, evidenced in the data for the study. It seems probable that B's imitation of John's gestures has something to do with this level of transformation, that is, the intrapersonal ZPD. It may also be that B's use of illustrator gestures is connected to the process of second language learning psycholinguistically, that the use of illustrators is helping him to self-regulate as well as communicate, as indeed would be expected within Vygotskian theory.

In closing, I would like to make the point that the findings of this study strongly suggest that the Zone of Proximal Development is of an embodied nature; and moreover, that gesture because of its highly linguistic nature needs to be considered in conjunction with the verbal accounts, as the two channels are complementary, and taken together reveal a good deal more about interaction in the ZPD than if considered separately.

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